

REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of Nov. 01, 2007.

Reconsideration of the Application is requested.

The Office Action

Claims 11-29 are pending herein.

Claims 12 and 22 stand rejected under 35 U.S.C. §112 second paragraph for having an insufficient antecedent basis and for being indefinite.

Claims 15-16 and 25-26 stand rejected under 35 U.S.C. §112 first paragraph for failing to reasonably provide enablement for "digital scanning calorimetry."

Claims 20 and 27-29 stand rejected under 35 U.S.C. §102(b) as being anticipated by Chen et al (In-Mold Functional Coating of Thermoplastic Substrate: Process Modeling, Antec 2001, 255).

Claims 11-14 and 17-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde (A Procedure for Advection and Diffusion in Thin Cavities, Computational Mechanics 15 (1995) pp. 511-520, Springer-Verlag, 1995).

Claims 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde and further in view of Walsh (U.S. Pat. No. 6,099,162).

Claim 21 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde.

Claims 22-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chen as applied to claim 20 and further in view of Zuyev (Optimizing Injection Gate Location and Cycle Time for the In-Mold Coating (IMC) Process, Antec 2001).

Claims 25-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Zuyez as applied to claim 23 and further in view of Walsh.

By this amendment, claims 12, 15, 22 and 25 are amended. No new matter is added. Applicants respectfully traverse the rejections.

I. Rejections under 35 U.S.C. §112 Second Paragraph

Claims 12 and 22 have been rejected under the second paragraph of 35 U.S.C. §112 for

having an insufficient antecedent basis. Claims 12 and 22 recite the limitation “wherein instructions for carrying out said method.” The Examiner states that there is insufficient antecedent basis for the limitation because the “instructions” are not mentioned before. Claims 12 and 22 have been amended to recite the method of claim 11, wherein said method is encompassed in instructions contained in a computer readable medium.

Claims 12 and 22 have further been rejected under the second paragraph of 35 U.S.C. §112 for being indefinite. Claims 12 and 22 recite the phrase “computer readable medium format,” which the Examiner states renders the claims indefinite. Accordingly, claims 12 and 22 have been amended to recite “computer readable medium.”

II. Rejection Under 35 U.S.C. §112 First Paragraph

Claims 15-16 and 25-26 have been rejected under the first paragraph of 35 U.S.C. §112 for failing to reasonably provide enablement for “digital scanning calorimetry.” Claims 15 and 25 have been amended to recite “differential scanning calorimetry.”

III. Rejection Under 35 U.S.C. §102(b)

Claims 20 and 27-29 have been rejected under 35 U.S.C. §102(b) as being anticipated by Chen et al (In-Mold Functional Coating of Thermoplastic Substrate: Process Modeling, Antec 2001, 255). The Examiner alleges that Chen teaches the method of claim 20 for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article. Applicant respectfully traverses the rejection for at least the following reason. Chen does not teach or suggest the subject embodiment as set forth in independent claim 20 (and claims 27-29 that depend therefrom).

In particular, Chen does not disclose optimizing the location of in-mold injection port to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article. Chen teaches optimizing the process of the thermoplastic injection molding cycle, specifically the balancing of the coating injection and the temperature. (p.1, col. 2, paragraph 4). Chen does not refer to or even suggest that the location of the injection port is a factor in this process. Similarly, Chen does not teach using the predicted coating composition fill pattern to determine the optimal placement of a coating injection nozzle. Chen describes that

the fill pattern is to be used to minimize the potential for trapping air. (p. 2, col. 1, lines 1-3).

Moreover, contrary to the Examiners suggestions, Chen does not disclose predicting a coating fill pattern by determining the relationship between fluidity, S , of an in mold coating composition and a pressure gradient present in said mold. According to the Examiner, fluidity S is a ratio between flow rate and gradient pressure, and equation 11 of Chen establishes a relationship between flow rate and gradient pressure. Therefore, equation 11 is essentially equating S , not determining a relationship between S and the gradient pressure.

In view of the forgoing, it is submitted that Chen fails to teach all of the features of the Applicant's invention; therefore, Applicant submits that the subject application is patentably distinguished from the cited art. It is respectfully requested that the rejection of independent claim 20 (and claims 27-29 that depend therefrom) be withdrawn.

IV. Rejection of Claims 11-14 and 17-19 under 35 U.S.C. §103(a)

Claims 11-14 and 17-19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde (A Procedure for Advection and Diffusion in Thin Cavities, Computational Mechanics 15 (1995) pp. 511-520, Springer-Verlag, 1995). It is respectfully requested that this rejection be withdrawn for at least the following reason. Chen in view of Ladeinde does not, individually or in combination, teach the subject embodiments of independent claim 11 (as well as claims 12-14 and 17-19 that depend therefrom).

The Examiner alleges Chen teaches a method for optimizing the location of an in-mold coating injection point in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article. As discussed in Section III above, Chen is directed to the optimization of the process of thermoplastic injection molding; however does not suggest that a factor in the optimization is the location of the in-mold coating injection point. Also consistent with the discussion in Section III, Chen does not teach using the predicted coating composition fill pattern to determine the optimal placement of a coating injection nozzle.

Independent claim 11 recites predicting a coating composition fill pattern in said mold by using a finite difference method. According to the Examiner, Ladeinde's finite difference method inherits steps a), b), and c) since it involves dividing a part into a number of finite elements and performing numerical analysis starting at a fixed location and traverse in a direction in term of distance and time. However, neither Ladeinde nor Chen disclose repeating

the steps of defining a fixed special step to track a flow front location of the in-mold coating composition, advancing the flow front location by one special step for a fixed time increment, and obtaining the pressure and coating composition thickness distributions in said mold coatings until the filling process is complete. The Examiner alleges that Chen discloses this feature; however, even the Examiner recognized that Chen does not disclose the steps. Therefore, Chen is unable to teach this feature of the present invention. It follows that Ladeinde fails to make up for the aforementioned insufficiencies mentioned in Chen; therefore, the Chen in view of Ladeinde, alone or in combination, does not teach or suggest the subject embodiments of independent claim 11 (as well as claims 12-14 and 17-19 that depend therefrom). Applicant respectfully requests the withdrawal of the rejection.

In addition, the Examiner rejected claim 14, stating that it is the choice of one skilled in the art to input data necessary for performing said steps into said computer manually. The Applicant agrees that it is the choice of one skilled in the art whether to manually input data into the computer; however, Applicant disagrees with the rejection. Inputting the data manually is a feature of the subject invention similar to inputting the data automatically, as seen in claim 15. Accordingly, the rejection of claim 14 should be withdrawn.

V. Rejection of Claims 15-16 under 35 U.S.C. §103(a)

Claims 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde and further in view of Walsh (U.S. Pat. No. 6,099,162). Applicant respectfully traverses the rejection for at least the following reason. Claims 15 and 16 include all the limitations of and depend from allowable claim 11 and are believed to be in allowable condition for the reasons hereinbefore discussed with regard to claim 11. Walsh does not make up for the insufficiencies of Chen and Ladeinde. Reconsideration and withdrawal of the rejections is respectfully requested.

VI. Rejection of Claim 21 Under 35 U.S.C. §103(a)

Claim 21 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Ladeinde. Applicant disagrees with the Examiner. Ladeinde mentions a hybrid method with finite element in the lateral plane and a finite difference in the transverse direction; however Ladeinde specifically discourages this method since it is limited in the sense that some

assumptions have to be made regarding the contribution of an element to the solution at a node. (p. 515, paragraph 1) Therefore, Ladeinde teaches against using such a hybrid method and it would not have been obvious to one skilled in the art to use the finite element method combined with a control volume approach as the Examiner alleges. Applicant respectfully requests withdrawal of the rejection.

VII. Rejection of Claims 22-24 Under 35 U.S.C. §103(a)

Claims 22-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chen as applied to claim 20 and further in view of Zuyev (Optimizing Injection Gate Location and Cycle Time for the In-Mold Coating (IMC) Process, Antec 2001). Applicant respectfully disagrees with the Examiner. Claims 22-24 include all the limitations of and depend from allowable claim 20 and are believed to be in allowable condition for the reasons hereinbefore discussed with regard to claim 20. Zuyez does not make up for the insufficiencies of Chen; therefore, reconsideration and withdrawal of the rejections is requested.

VIII. Rejection of Claims 25-26 Under 35 U.S.C. §103(a)

Claims 25-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Zuyez as applied to claim 23 and further in view of Walsh. Applicant respectfully disagrees with the Examiner. Claims 25-26 include all the limitations of and depend from allowable claim 20 and are believed to be in allowable condition for the reasons hereinbefore discussed with regard to claim 20. Walsh does not make up for the insufficiencies of Chen and Zuyez as set forth in Section VII above concerning claim 22-24; therefore, reconsideration and withdrawal of the rejections is requested.

CONCLUSION

For the reasons detailed above, it is respectfully submitted that all claims remaining in the application (Claims 11-29) are now in condition for allowance.

Respectfully submitted,

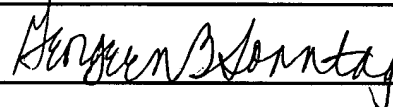
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February 1, 2008

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